

Applicant: Arnold Schneider
Serial No.: 10/826,857
Date: September 26, 2005

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Listing of the Claims:

1. (Currently Amended) An apparatus for the continuous bonding and/or welding of material webs by means of ultrasound comprising:
 - an ultrasonic horn configured as at least two rotating rollers, arranged in tandem and offset to each other in the axial direction by an amount equal to a lambda-quarter wave of an imposed oscillation;
 - an anvil disposed opposite the rotating rollers, each rotating roller in contact with the anvil;
 - an amplitude transformer set axially on each end of the rotating rollers;
 - at least one ultrasonic converter attached to each amplitude transformer with an energy supply; and
 - the length of the rotating rollers equaling a multiple of a lambda-half wave of an imposed oscillation on the rotating rollers.
2. (Previously Presented) The apparatus in accordance with claim 1, wherein radial bearings are disposed between the amplitude transformer and each rotating roller.
3. Cancelled
4. (Previously Presented) The apparatus in accordance with claim 1, wherein the anvil is a rotating counter-roller.
5. (Previously Presented) The apparatus in accordance with claim 1, wherein the outer surface of one of the rotating roller and the counter-roller is one of smooth and patterned.
6. (Previously Presented) The apparatus in accordance with claim 1, wherein the anvil is fixed.

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7. (Previously Presented) The apparatus in accordance with claim 6, wherein the anvil extends in a tangential direction respective to the at least two rotating rollers.

8. (Previously Presented) The apparatus in accordance with claim 1, wherein the depth of the working gap between the at least two rotating rollers and the anvil is adjustable.

9. (Previously Presented) The apparatus in accordance with claim 1, wherein the pressure exerted by the at least two rotating rollers on the material web is adjustable.

10. (Previously Presented) The apparatus in accordance with claim 1, wherein each of the at least two rotating rollers is formed by a hollow shaft with trunnions.

11. (Previously Presented) The apparatus in accordance with claim 1, wherein the at least two rotating rollers can be one of cooled and heated.

12. (Previously Presented) The apparatus in accordance with claim 4, wherein the counter-roller is configured as an active roller with an amplitude transformer and an ultrasonic converter attached thereto.

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Previously Presented) The apparatus in accordance with claim 1, wherein the diameter of at least one rotating roller is partially waisted.

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17. (Previously Presented) The apparatus in accordance with claim 16, wherein the depth of the waist equals one part of a lambda-half wave of the imposed oscillation.

18. (Previously Presented) The apparatus in accordance with claim 1, wherein a diameter of at least one rotating roller is made thicker such that pressure is equally distributed along its length.

19. (Previously Presented) The apparatus in accordance with claim 1, wherein at least one rotating roller has a swelling.

20. (Previously Presented) The apparatus in accordance with claim 1, wherein a change in diameter of at least one rotating roller corresponds to a bending line.

21. (Previously Presented) The apparatus in accordance with claim 4, wherein axes of at least one rotating roller and the counter-roller anvil are skewed relative to each other.

22. (Previously Presented) The apparatus in accordance with claim 1, wherein the anvil is one of a knife and a blade.

23. (Currently Amended) An apparatus for the continuous bonding and/or welding of material webs by means of ultrasound comprising:
an ultrasonic horn configured as at least two rotating rollers, arranged in tandem and offset each other in the axial direction by amounts equal to a lambda-quarter wave of an imposed oscillation, and the length of each rotating roller equaling a multiple of a lambda-half wave of the imposed oscillation of each rotating roller.

a fixed anvil configured as a rotating counter-roller disposed opposite the rotating rollers, each rotating roller in contact with the anvil, the anvil extending in a tangential direction respective to each rotating roller;

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an adjustable working gap between each rotating roller and the anvil;
an amplitude transformer set axially on each end of each rotating roller;
at least one ultrasonic converter attached to each amplitude transformer
with an energy supply; and
radial bearings disposed between the amplitude transformer and the
rotating roller.

24. (Cancelled)